

## ASSIGNMENT - 4

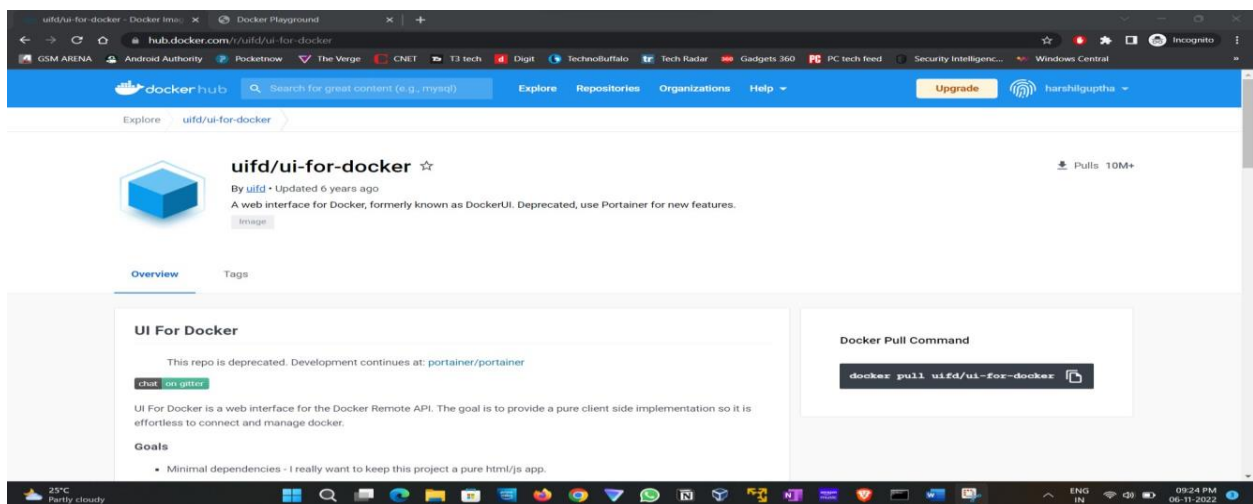
Assignment date	06 November 2022
Student name	BLESSY JEFIRINA H
Student roll no	711719104017
Team ID	PNT2022TMID31589

### 1. Pull an Image from docker hub and run it in docker playground.

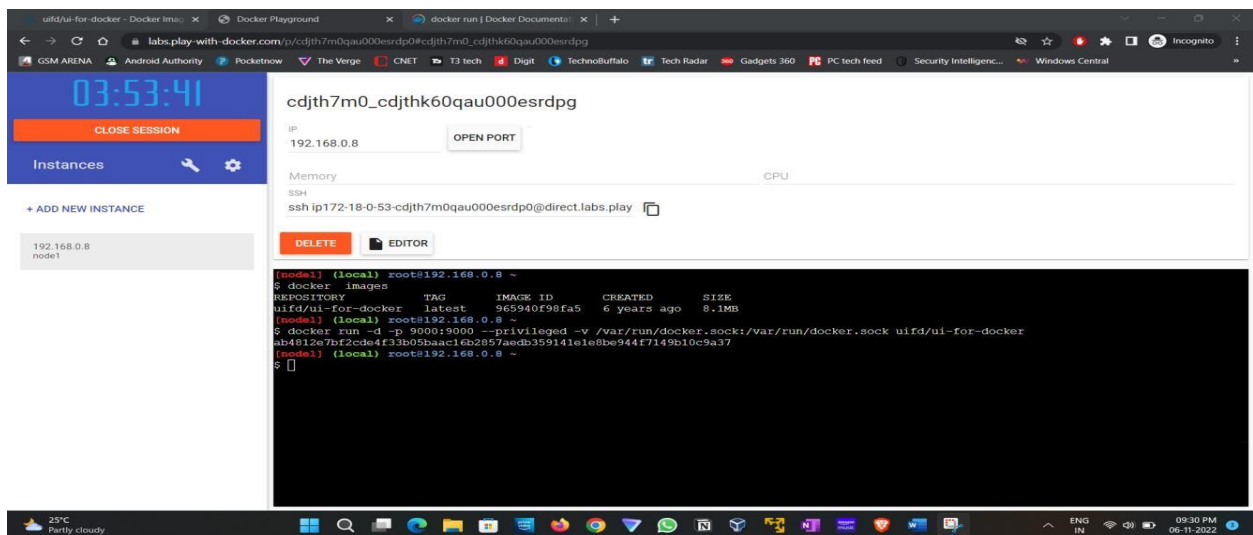
```
docker pull uifd/ui-for-docker
```

```
docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock
```

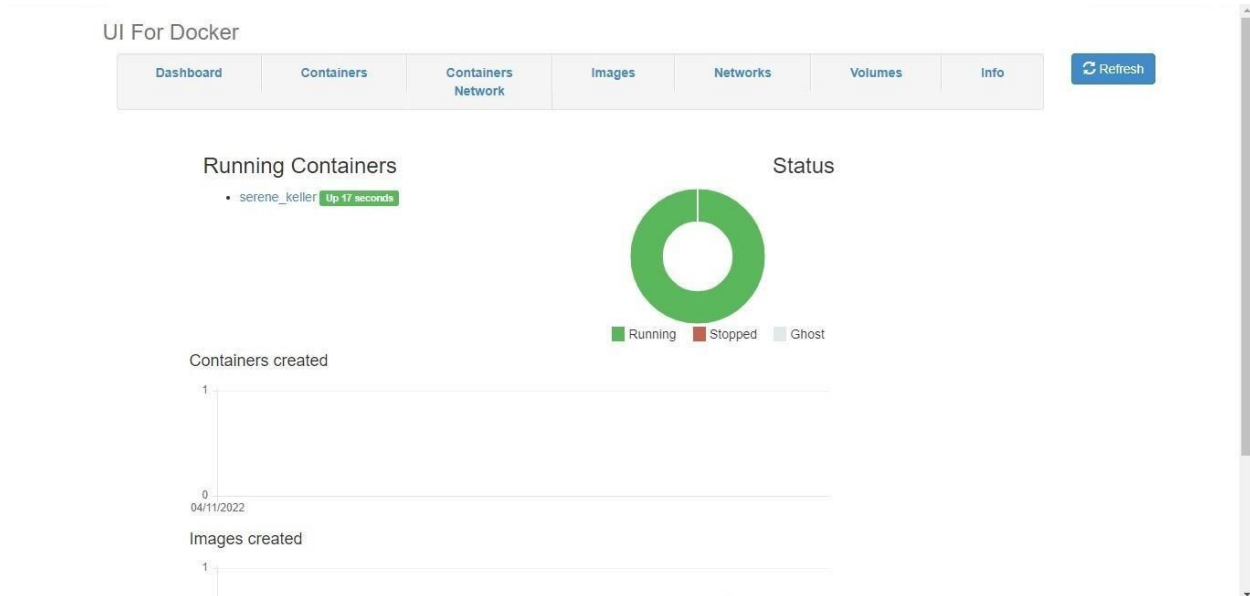
```
uifd/ui-for-docker
```



### Docker playground:



## Docker UI:



## 2.Create a docker file for the job portal application and deploy it in Docker desktop application.

### DockerFile

```
Dockerfile - Notepad
File Edit Format View Help
FROM python:3.8
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

### Build Docker image

```
C:\Windows\System32\cmd.exe
E:\Study material\Sem 7\IDM\Exercise\Assignment4>docker build -t hello-world .
[+] Building 160.4s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> [internal] load dockerignore
=> [internal] load metadata for docker.io/library/python:3.8
=> [1/5] FROM docker.io/library/python:3.8@sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5
=> sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5 149.9s
=> sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5 0.0s
=> sha256:17c9ed447d3387e5a1c07d4f09d6a05ec1408e90029fa3aa55470d4504f7770 55.05MB / 55.05MB
=> sha256:4add8027acc18a128100724f04a00cda2f10d0eaf15af7f0ad70a700 19.50MB / 19.50MB
=> sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5 1.80kB / 1.80kB
=> sha256:10a101fc7737ef00912c0e0f48001a0f0010a7f16c5c700b0000000000000000 2.22kB / 2.22kB
=> sha256:de44dc0e000100007377e10220a914da403bc93fa79003c10f2dcf10000001 5.15MB / 5.15MB
=> sha256:a7909cf0f0000000000000000000000000000000000000000000000000000000 54.50MB / 54.50MB
=> sha256:7afbf0d0cf01271f00f0001710220a914da403bc93fa79003c10f2dcf10000001 190.07MB / 190.07MB
=> sha256:10a101fc7737ef00912c0e0f48001a0f0010a7f16c5c700b0000000000000000 6.20MB / 6.20MB
=> sha256:20079a221304cf0d0cf01271f00f0001710220a914da403bc93fa79003c10f2dcf10000001 17.30MB / 17.30MB
=> sha256:a7909cf0f0000000000000000000000000000000000000000000000000000000 07.34B / 07.34B
=> extracting sha256:17c9ed447d3387e5a1c07d4f09d6a05ec1408e90029fa3aa55470d4504f7770 10.9s
=> extracting sha256:de44dc0e000100007377e10220a914da403bc93fa79003c10f2dcf10000001 1.3s
=> extracting sha256:4add8027acc18a128100724f04a00cda2f10d0eaf15af7f0ad70a700 1.0s
=> extracting sha256:a7909cf0f0000000000000000000000000000000000000000000000000000000 13.3s
=> extracting sha256:7afbf0d0cf01271f00f0001710220a914da403bc93fa79003c10f2dcf10000001 13.0s
=> extracting sha256:10a101fc7737ef00912c0e0f48001a0f0010a7f16c5c700b0000000000000000 0.42s
=> extracting sha256:20079a221304cf0d0cf01271f00f0001710220a914da403bc93fa79003c10f2dcf10000001 1.1s
=> extracting sha256:aa3ca325f0db3380000000000000000000000000000000000000000000000000 0.0s
=> extracting sha256:7afbf0d0cf01271f00f0001710220a914da403bc93fa79003c10f2dcf10000001 0.0s
=> [internal] load build context
=> transferring context: 1.15kB
=> [2/5] WORKDIR /app
=> [3/5] ADD . /app
=> [4/5] COPY requirements.txt /app
=> [5/5] RUN python3 -m pip install -r requirements.txt
=> exporting to image
=> exporting layers
=> writing image sha256:f08fcd00b0000000000000000000000000000000000000000000000000000000
=> naming to docker.io/library/hello-world
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
```

## Deploy it on Docker hub

Docker Desktop Upgrade plan

Containers Images Volumes Dev Environments BETA

Extensions BETA Add Extensions

Images on disk Last refresh: Never 1 images Refresh to see disk usage Clean up

Images Give feedback

LOCAL REMOTE REPOSITORIES

Search

☐ In use only

NAME ↑	TAG	IMAGE ID	CREATED	SIZE
hello-world	latest	f68fcdce5bb6	less than a minute ago	919.36 MB

RAM 3.66GB CPU 0.08% Connected to Hub v4.13.1

```
C:\Windows\System32\cmd.exe
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
hello-world   latest    f68fcdce5bb6   5 minutes ago  919MB

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker login
Authenticating with existing credentials...
Login Succeeded

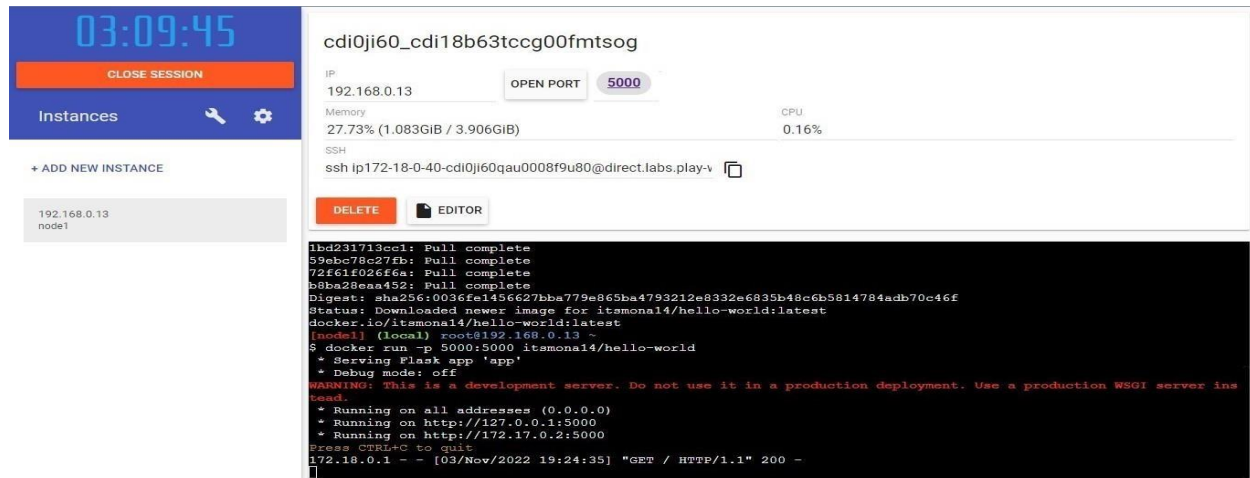
Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world itsmona14/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push itsmona14/hello-world
Using default tag: latest
The push refers to repository [docker.io/itsmona14/hello-world]
373eb5cf4ceb: Pushed
1e505dc1de5e: Pushed
090c85cb75c5: Pushed
ded8299b8f1a: Pushed
1fe0699af9f7: Mounted from library/python
156568a71809: Mounted from library/python
5fca8a94d542: Mounted from library/python
6b183c62e3d7: Mounted from library/python
882fd36bfd35: Mounted from library/python
d1dec9917839: Mounted from library/python
d38adf39e1dd: Mounted from library/python
4ed121b04368: Mounted from library/python
d9d07d703dd5: Mounted from library/python
latest: digest: sha256:46ff91edc98aaa5d7fff51ba708b6498af3c4f64612d9a990bf437497555fd82 size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>
```

## Tested it using Docker playground



cdi0ji60\_cdi18b63tccg00fmtsog

IP: 192.168.0.13 OPEN PORT 5000

Memory: 27.73% (1.083GiB / 3.906GiB) CPU: 0.16%

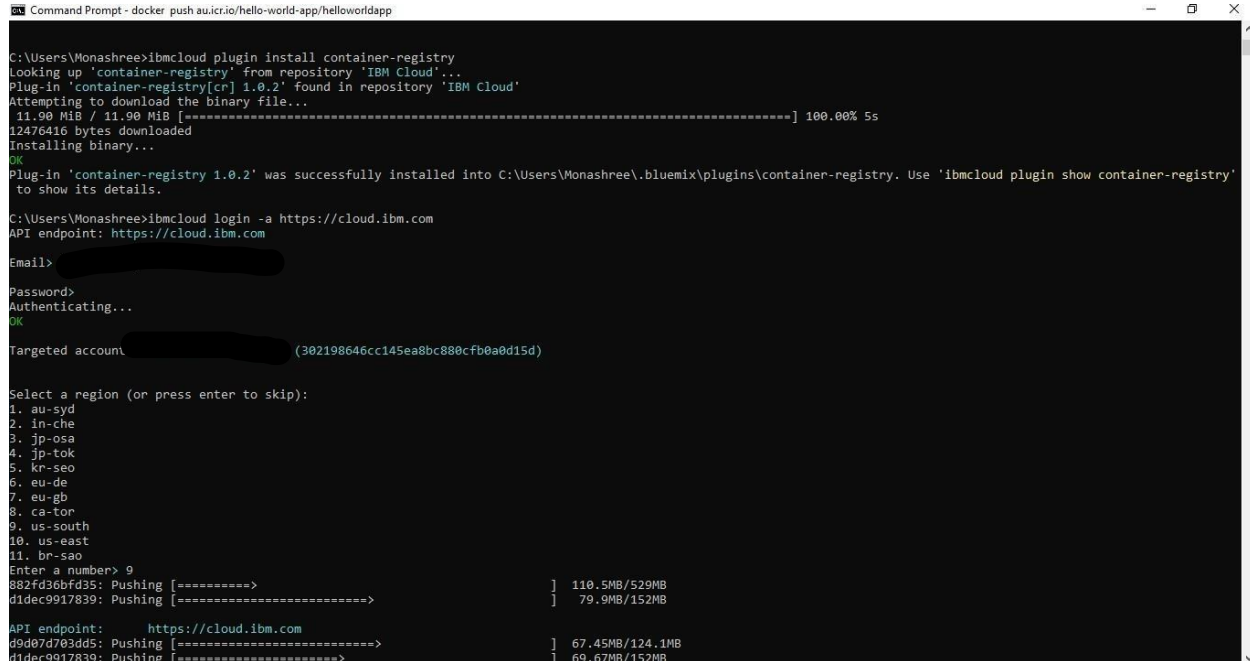
SSH: ssh ip172-18-0-40-cdi0ji60qau0008f9u80@direct.labs.play-v

DELETE EDITOR

```
1bd231713cc1: Pull complete
596bc78c27eb: Pull complete
72f61f026f6a: Pull complete
b8ba28eaa452: Pull complete
Digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f
Status: Downloaded newer image for itamona14/hello-world:latest
docker.io/itamona14/hello-world:latest
(itamona14) (local) root@192.168.0.13 ~
$ docker run -p 5000:5000 itamona14/hello-world
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.18.0.1 - - [03/Nov/2022 19:24:35] "GET / HTTP/1.1" 200 -
```

## 3.Create a IBM container registry and deploy hello world app or job portal app.

My image link: [au.icr.io/hello-world-app/hello-world](https://au.icr.io/hello-world-app/hello-world)



```
Command Prompt - docker push au.icr.io/hello-world-app/helloworldapp

C:\Users\Monashree>ibmcloud plugin install container-registry
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Attempting to download the binary file...
11.90 MiB / 11.90 MiB [=====] 100.00% 5s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\Monashree\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry'
to show its details.

C:\Users\Monashree>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com

Email> [REDACTED]
Password> [REDACTED]
Authenticating...
OK
Targeted account [REDACTED] (302198646cc145ea8bc880cfb0a0d15d)

Select a region (or press enter to skip):
1. au-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 9
882fd36bfd35: Pushing [=====] 110.5MB/529MB
d1dec9917839: Pushing [=====] 79.9MB/152MB
API endpoint: https://cloud.ibm.com
d9d07d703dd5: Pushing [=====] 67.45MB/124.1MB
d1dec9917839: Pushing [=====] 69.67MB/152MB
```

```
C:\Windows\System32\cmd.exe - docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world

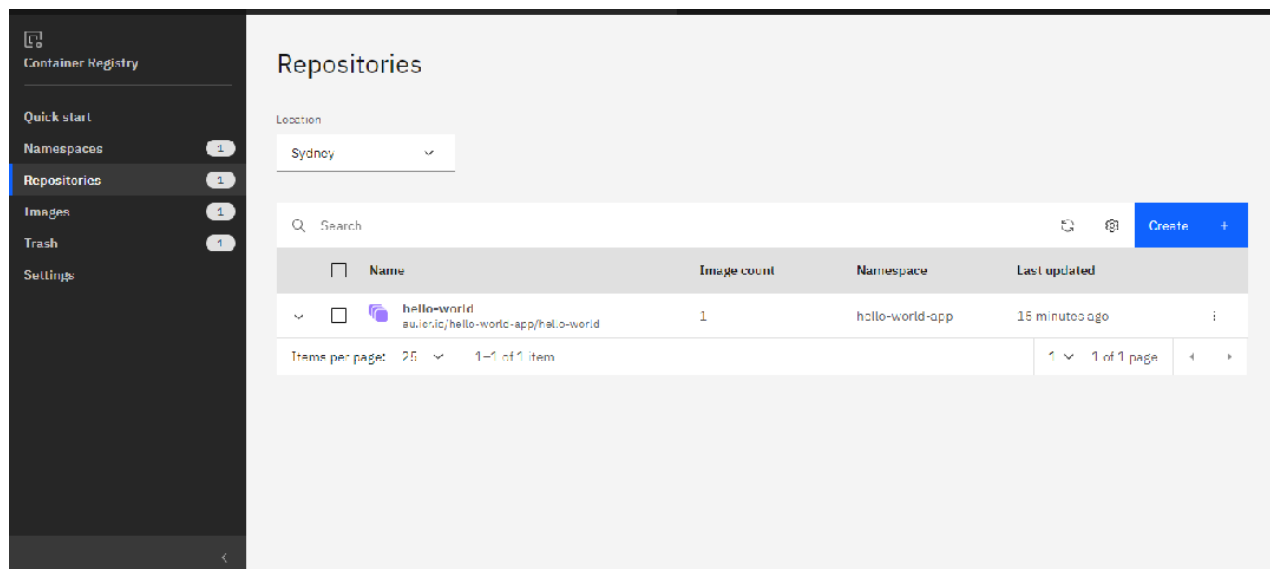
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bdc5cc089: Pushed
006e0938fc5e: Pushed
4bb20c08724f: Pushed
402dea3c8533: Pushed
f5d161bb139: Pushed
1569e0d95ce6: Pushed
d9e08da15d0c: Pushed
6b183c62e3d7: Mounted from hello-world-app/hello-world-app
882f436bf3d5: Mounted from hello-world-app/hello-world-app
d1dec9917839: Mounted from hello-world-app/hello-world-app
d38adf39e1dd: Mounted from hello-world-app/hello-world-app
4ed121b04368: Mounted from hello-world-app/hello-world-app
09d07d703dd5: Mounted from hello-world-app/hello-world-app
latest: digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb76c46f size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>ibmcloud cr image-list
Listing images...

Repository          Tag    Digest          Namespace      Created      Size    Security status
au.icr.io/hello-world-app/hello-world  latest  0036fe145662    hello-world-app  12 minutes ago  356 MB  -

OK

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world
* Serving flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://172.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [03/Nov/2022 19:35:58] "GET / HTTP/1.1" 200 -
```



#### 4.Create a Kubernetes cluster in IBM cloud and deploy hello world image or job portal image and also expose the same app to run in node port.

<https://raw.githubusercontent.com/itsmona14/IBM-Assignment-cloud/main/deployment.yaml>

```
apiVersion: v1
kind: Service
metadata:
  name: hello-world-deploymentspec:
ports:
- port: 5000
  targetPort: 5000
selector:
```

```

app: hello-world
---
apiVersion: apps/v1kind: Deployment metadata:
  name: hello-world-deploymentspec:
    replicas: 1selector:
      matchLabels:
        app: hello-worldtemplate:
          app: hello-worldspec:
            containers:
              - name: hello-world
                image: au.icr.io/hello-world-app/hello-worldimagePullPolicy: Always
            ports:
              - containerPort: 5000

```

Clusters / mycluster-free Normal Expires in 29 days [Add tags](#) [Help](#) [Kubernetes dashboard](#) [Actions...](#)

**Overview**

- Worker nodes
- Worker pools
- DevOps new

**Expires in 29 days:**  
Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a [standard cluster](#).

**Node status**  
1 of 1  
Normal  
[Details](#)

**Add-on status**  
0 of 0  
Normal  
[Details](#)

**Master status**  
Normal  
Normal  
[Docs](#)

**Ingress status**  
Unknown  
[Docs](#)

**Details**

Cluster ID cd1f30c50a6e4hav0k1g	Version 1.24.7_1542	Infrastructure Cloudic	Zones Milan 01
Created 04/11/2022, 01:12	Resource group Default	Image security enforcement <a href="#">Enable</a>	

**kubernetes** default [Search](#) [+](#) [🔔](#) [👤](#)

**Workloads > Deployments**

**Workloads**

- Cron Jobs
- Daemon Sets
- Deployments**
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

**Service**

- Ingresses
- Ingress Controllers
- Services

**Config and Storage**


- Config Maps

**CPU Usage**


**Memory Usage**



**Deployments**

Name	Images	Labels	Pods	Created
<span>hello-world-deployment</span>	<a href="#">Show all</a>	-	1 / 1	24 minutes ago


 **kubernetes**

default

 Search

+  

Workloads > Pods > hello-world-deployment-6c75b9c898-p4ntv > Logs

Workloads 

Cron Jobs

Daemon Sets

Deployments

Jobs


Pods

Replica Sets


Replication Controllers

Stateful Sets

Service

Ingresses 

Ingress Classes

Services 

Config and Storage

Logs from hello world in hello world dep...

```
* Serving Flask app "app"
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.30.82.142:5000
Press CTRL+C to quit
```

Logs from Nov 4, 2022 to Nov 4, 2022 UTC

cu-do.containers.cloud.bm.com/kubeproxy/clusters/cdi/j33f0a6mchav5kg/...